

REMARKS

Claims 16 – 29, 32, 34 and 36 are pending in the present application. Claims 1 – 15 and 30 were previously canceled, and claims 31, 33, 35 and 37 are canceled by the present amendment. Reconsideration of the application is respectfully requested.

In the Office Action, item 3 objects to claims 32 and 35 because of informalities. Applicant is amending claim 32 to address its informality, and canceling claim 35. A withdrawal of the objection is respectfully solicited.

In the Office Action, item 5, claims 16 – 24, 26, 27, 29, and 31 – 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,625,763 to Boner (hereinafter “the Boner patent”), in view of U.S. Patent Application Publication No. 2004/0168011 to Hemming (hereinafter “the Hemming publication”). Claims 16, 23, 26 and 29 are independent claims. Applicant is clarifying an aspect of claims 16, 23, 26 and 29 that is neither disclosed nor suggested by the cited combination of the Boner patent and the Hemming publication.

Claim 16 provides for a method to implement a column interleaving function. The method includes, *inter alia*, inputting a stream of data entities in a serial format into a shift register that shifts the data entities therethrough and reformats the data entities from the serial format into a parallel format.

The Boner patent, with reference to FIGS. 3 and 4, discloses a block interleaver 300 that includes a register file 301 and a RAM 200 (col. 5, lines 39 – 42). The Boner patent states, at col. 6, lines 24 – 29:

Block interleaver 300 operates as follows. The first sixteen data values $D_0 - D_{15}$ are written to register file 301 in column order. Thus, during a first 4-bit write operation, the first four data values $D_0 - D_3$ are written to memory cells M_0 , M_4 , M_8 and M_{12} , respectively, through the first ports (P1) of these memory cells. (emphasis added)

Whereas data values $D_0 - D_3$ are written to register file 301 during a first (i.e., single) write operation, data values $D_0 - D_3$ are written to register file 301 in parallel. Therefore, data values $D_0 - D_3$ are presented to register file 301 in a parallel format.

The Boner patent also states, at col. 6, lines 39 – 46:

After register file 301 has been filled, the 4-bit values stored in rows R0, R1, R2 and R3 of register file 301 are transferred to rows R0, R8, R16 and R24, respectively, of RAM 200. This process requires four 4-bit read operations from register file 301 and four 4-bit write operations to RAM 200. The four write operations to RAM 200 are staggered by eight rows, thereby promoting the separation of consecutive data bits within the interleaved data stream. (emphasis added)

That is, data value D_0 is written to RAM 200 during a first write operation, data value D_1 is written to RAM 200 during a second write operation, data value D_2 is written to RAM 200 during a third write operation, and data value D_3 is written to RAM 200 during a fourth write operation. Thus, data values $D_0 - D_3$ are written to RAM 200 in serial format.

The Office Action, on page 3, suggests that register file 301 is an equivalent of the shift register of claim 16. However, the Boner patent does not describe register 301 as having any data shifted therethrough.

Whereas in the Boner patent (a) data values $D_0 - D_3$ are presented to register file 301 in a parallel format, (b) register 301 does not shift any data therethrough, and (c) data values $D_0 - D_3$ are written to RAM 200 in serial format, the Boner patent does not disclose inputting a stream of data entities in a **serial** format into a shift register that **shifts** the data entities therethrough and reformats the data entities from the **serial** format into a **parallel** format, as recited in claim 16.

Applicant submits that the Hemming publication does not make up for this deficiency of the Boner publication, as the Boner publication relates to claim 16. Thus, Applicant further submits that the cited combination of the Boner patent and the Hemming publication does not disclose all of the elements of claim 16.

Moreover, whereas in the Boner patent data values D₀ –D₃ are written to register file 301 in parallel and data values D₀ –D₃ are written to RAM 200 in serial format, register file 301 effectively reformats data values D₀ –D₃ from a parallel format to a serial format. A modification of register file 301 to receive a stream of data entities in a serial format and reformat the data entities from the serial format into a parallel format, as recited in claim 16, would require a **change in the principle of operation** of interleaver 300. As such, the Boner patent, whether being considered alone or in combination with another reference, cannot be asserted in a section 103(a) rejection of claim 16.

Whereas the cited combination of the Boner patent and the Hemming publication does not disclose all of the elements of claim 16, and whereas the Boner patent cannot be asserted in a section 103(a) rejection of claim 16, Applicant respectfully submits that claim 16 is patentable over the cited combination of the Boner patent and the Hemming publication.

Independent claims 23, 26 and 29 each includes recitals similar to those of claim 16 described above. Thus, claims 23, 26 and 29, for reasoning similar to that provided in support of claim 16, are also patentable over the cited combination of the Boner patent and the Hemming publication.

Claims 17 – 22 depend from claim 16. Claims 24 and 32 depend from claim 23. Claims 27 and 34 depend from claim 26. Claim 36 depends from claim 29. By virtue of these dependencies, claims 17 – 22, 24, 27, 32, 34 and 36 are also patentable over the cited combination of the Boner patent and the Hemming publication.

Claims 31, 33, 35 and 37 are canceled. Thus the rejection thereof is rendered moot.

Applicant respectfully requests reconsideration and withdrawal of the section 103(a) rejection of claims 16 – 24, 26, 27, 29 and 31 – 37.

In the Office Action, section 7, claims 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Boner patent in combination with two other references. Claims 25 and 28 depend from

claims 23 and 26, respectively. Above, Applicant explained that the Boner patent, whether being considered alone or in combination with another reference, cannot be asserted in a section 103(a) rejection of claim 16. Whereas claims 23 and 26 include recitals similar to that of claim 16, Applicant submits that the Boner patent, whether being considered alone or in combination with another reference, cannot be asserted in a section 103(a) rejection either of claims 23 or 26. Accordingly, Applicant further submits that claims 23 and 26, and claims 25 and 28, by virtue of their dependence, are all patentable over the cited combination of the Boner patent and the two other references.

Reconsideration and withdrawal of the section 103(a) rejection of claims 25 and 28 are respectfully requested.

As mentioned above, Applicant is clarifying an aspect of claims 16, 23, 26 and 29. Applicant is also amending (a) claims 16, 23 and 26 delete recitals that do not appear to be necessary for patentability, (b) claims 16 and 17 to avoid recitals of "steps", (c) claim 32 to address an informality, and (d) claim 34 to properly refer back to a previously introduced term.

In view of the foregoing, Applicant respectfully submits that all claims presented in this application patentably distinguish over the prior art. Accordingly, Applicant respectfully requests favorable consideration and that this application be passed to allowance.

Respectfully submitted;



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